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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,523	11/19/2003	Junko Obuchi	04329.3179	4702
22852	7590	03/08/2006	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			ARANCIBIA, MAUREEN GRAMAGLIA	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,523

Applicant(s)

OHUCHI ET AL.

Examiner

Maureen G. Arancibia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-9 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-9 and 18-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the invention of Group I, Claims 1-9 and 18-24, in the reply filed on 19 December 2005 is acknowledged.
2. The Examiner notes the cancellation of the non-elected Claims 10-17 in the amendment filed on 19 December 2005.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. **Claims 1-3, 5-9, and 18-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Specifically, the recitation in Claims 1 and 18 that the metal oxide structural body is in a position of the vicinity of the plasma and in a position out of ion irradiation from the plasma is not understood. Specifically, it is unclear how can the metal oxide body could be in the vicinity of the plasma and *not* experience ion irradiation. In fact, Applicant's intended use for the metal oxide body is that it be reduced by hydrogen atoms from the plasma, thereby *necessitating* that the metal oxide body experience ion irradiation from the plasma. For the purposes of the following examination on the merits only, this recitation has been interpreted to mean that the metal oxide structural body is not disposed adjacent the substrate to be processed, presumably the main target of ion irradiation. Clarification is requested.

Additionally, Claim 3 is indefinite. It is unclear whether the language of the claim is intended to recite 1) a core structural body of a metal oxide that is coated with Cu or Ag, and then surface oxidized; or 2) a core structural body of some unspecified material that is coated with Cu or Ag, and then surface oxidized (i.e. it is a "metal oxide" structural body because it *comprises* metal oxide, not because it is manufactured entirely of metal oxide). If the first interpretation was the intended meaning, Applicant should identify support for such an embodiment in the original disclosure, and amend the claim to clearly recite the intended meaning. For the purposes of the following examination on the merits, the claim has been interpreted as requiring only a structural body *comprising* a copper oxide or silver oxide surface layer.

The remaining claims are rejected due to their dependence on independent claims 1 and 18.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-3, 7-9, and 18-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Application Publication 03-122292 to Kimura. The following rejection refers to the English Abstract and Figures of Kimura. An official English translation was requested on 1 March 2006.**

In regards to Claims 1 and 18, Kimura teaches a plasma processing apparatus, comprising: a chamber in which a substrate 4 to be processed is placed; a lower electrode 3 on which the substrate to be processed is placed; an upper electrode 1 disposed opposite to the lower electrode and which causes electric discharge in the chamber to produce a plasma (*parallel-plate reactive ion etching device*, Abstract, Lines 2-3 of the Purpose); a power supply that supplies voltage between the lower and upper electrodes (Figure 1); and a metal oxide structural body 6 disposed in on an inner surface of the chamber (*inner chamber wall 2*; Abstract, Line 5 of the Constitution). The metal oxide structural body is disposed on the sidewalls of the chamber, and therefore would be in a position in the vicinity of the plasma and in a position out of intense ion irradiation from the plasma. (See the rejection under 35 U.S.C. 112, second paragraph, set forth above.)

Kimura teaches that *O₂ is supplied as the gaseous reactant* (Abstract, Line 2 of the Constitution) to the chamber. Therefore, the presence of a gas introductory port is implicit in the teachings of Kimura, to enable the supply of the gas to the chamber.

In regards to Claims 1, 7, and 18, the particular type of gas used is a process limitation rather than an apparatus limitation, and the recitation of a particular type of gas does not limit an apparatus claim. (See *In re Casey*, 152 USPQ 235; *In re Rishoi*, 94 USPQ 71; *In re Young*, 25 USPQ 69; *In re Dulberg*, 129 USPQ 348; *Ex parte Thibault*, 64 USPQ 666; and *Ex parte Masham*, 2 USPQ2d 1647.) Moreover, the metal oxide structural body would inherently be capable of being reduced if a hydrogen-containing gas were introduced, through a simple reduction-oxidation reaction. This

rejection is based on the fact the apparatus structure taught by Kimura has the inherent structural capability of being used in the manner intended by the Applicant. When a rejection is based on the inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claims 8, 18, and 20, expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969); *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

In regards to Claims 2, 3, and 19, the metal oxide is copper oxide. (Abstract, Lines 3-6 of the Constitution)

In regards to Claim 9, in a verbal consultation with USPTO Translator Steven Spar, it was confirmed that the power supply is a high-frequency power supply (13.56 MHz; Page 3, lower left column, second paragraph of the Japanese document).

In regards to Claims 21 and 23, the metal oxide structural body 6 is disposed in part above the lower electrode and underneath the upper electrode, as broadly recited in the claim. (Figure 1)

In regards to Claims 22 and 24, an output of the power supply is applied to the lower electrode 3, and the upper electrode is grounded. (Figure 1)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of U.S. Patent 5,641,375 to Nitescu et al.

The teachings of Kimura were discussed above.

Kimura does not expressly teach that the metal oxide structural body is disposed in a ring or cylindrical shape on the inner surface of the chamber.

Nitescu et al. teaches that a plasma processing chamber is cylindrical in shape (Figure 1; Column 3, Lines 22-23)

It would have been obvious to one of ordinary skill in the art to make the chamber taught by Kimura cylindrical, as taught by Nitescu et al. The motivation for doing so, as would have been apparent to one of ordinary skill in the art at the time of the invention, would have been to ensure radial symmetry in the plasma processing to be performed in the chamber, for uniformly processing round substrates such as semiconductor wafers.

The metal oxide structural body 6 is taught by Kimura to conform to the sidewalls of the chamber (Figure 1), which is cylindrical in the combination of Kimura and Nitescu et al. Therefore, the metal oxide structural body in the combination of Kimura and Nitescu et al. would also have a cylindrical or ring shape, as broadly recited in the claims.

Response to Arguments

9. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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